Student Handouts for Mount Rainier Organisms

Low-Elevation Forest

Douglas Fir (*Pseudotsuga menziesii*)
Named after the explorer David Douglas, the Douglas Fir is neither an actual fir nor a hemlock, as the latin *Pseudotsuga* means "false hemlock". This tall tree, up to 300 feet when mature, has short blunt-pointed needles and cones that look like a mouse's tail and hind legs. One of the most common trees in the Pacific Northwest, they can live up to 1,000 years old. This tree is not shade tolerant, thus it grows tall and seedlings are only found in open areas. The tree has thick grooved bark that helps make it fire resistant.

Western Hemlock (*Tsuga heterophylla*)
This species of tree has soft needles with a white stripe, stomatal, on the underside. Cones are very small, only an inch long. It is very shade tolerant, and thus one of the most common understory trees in the low elevation mature Douglas Fir forests. It can also grow to 200 feet, if its soft needles aren't over eaten by elk in the winter.

Western Red Cedar (*Thuja plicata*)
Another example of a giant of the low-elevation forests, this tree grows as tall as 200 feet and can even reach a diameter of 20 feet. Stands of western red cedar grow on ground that is often too wet for other trees. Its needles are scale-like and cones are found in clusters.

Vanilla Leaf (*Achlys triphlla*)
This shade tolerant understory plant grows low and covers the forest floor like a carpet. It likes moist environments and lives up to its name when the leaf is dried as it smells like vanilla. The small white flowers do not have petals, but looks like an elongated white cone.

Devil's Club (*Oplopanax horridus*)
Devil's Club probable got its name from the covering of small spines on the underside of the plants, that contain a mild toxin that can cause swelling. The waist high plant has large maple-shaped leaves and grows in dense thickets that are hard to move through. A very common species found throughout the park at Mt. Rainier.

Banana Slug (*Ariolimax columbianus*)
The slug is found in moist wet areas and limits its activities to nighttime. When they need to conserve on water they retreat under leaves or even into the soil and can "shrink" to half their normal size. Most of the slugs water loss comes from creating the slime that helps the legless body move across the forest floor. To protect itself against predators its slime is bitter and has caustic chemicals.

Hairy Woodpecker (*Picodes villosus*)
The black and white with red crown hairy woodpecker is common in the coniferous forest of the park. They have strong bill, strong claws, and stiff long tail feathers.

Big Brown Bat (*Eptesicus fuscus)*
Bats are not just found in caves, and the hollowed out logs of an old growth forest provide great daytime shelters for these nocturnal animals. This bat is one of the larger bat species in the park, with a wingspan up to 12 inches long. Its dark chocolate brown is longer in length.

Northern Flying Squirrel (*Glaucomys sabrinus*)
Although this squirrel doesn't actually fly, the extra skin flaps between the legs and the body allow this squirrel to soar from tree to tree. This cinnamon-gray fur squirrel is nocturnal that requires snag trees for its nest. It eats cones from mature old growth forests, and the is eaten by northern spotted owls.

Raccoon (*Procyon lotor*)
The very curious animal is found near streams, since it is lacking salivary glands it washes its food before it eats. It is a carnivorous animal that is usually more nocturnal at night, and its dens are found in hallowed out trees.

Mountain Lions (*Felis concolor*)
This cat primarily hunts by stalking and eats animals as large of animals as elk. Because it has large space requirements numbers are not very high in the park. It will find shelter primarily in trees and rock outcroppings.

Mid-Elevation Forest

Pacific Silver Fir (*Abies amabilis*)
As the Latin name suggests, amabilis means "lovely fir," the tree stands very eloquently. It is shade tolerant, but not fire tolerant. It is one of the dominate mid-elevation forest trees and not as giant as other species of trees, growing to 180 feet tall.

Noble Fir (*Abies procera*)
This coniferous tree has blunt-pointed needles that curve up in a "hockey stick" appearance. The longer cones are barrel shaped and sit upright on branches. The thin plates that make up the bark give off a purplish gray color and give rise to the broad crown that can reach up to 200 ft. The noble fir sets root after a fire disturbance. The combination of stiff branches and symmetrical shape make this tree a popular Christmas tree choice.

Oval-leaf Huckleberry (*Vaccinium ovalifolium*)
Medium sized spreading shrub makes large edible blue-black fruit that animals of all kinds like to enjoy. These fruits appear earlier then any other huckleberry species.

Pacific Rhododendron (*Rhododendron macrophllum*)
This shade tolerant shrub has broadly bell-shaped and glossy leaves from its waxy covering. Its pink flower has become Washington's state flower and is found in drier areas of the park.

Northern Harrier (*Circus cyaneus*)
Found in open meadows since it is one of the only hawks that fly low to the ground in swooping flight. Its long wingspan of 4 feet helps it catch rodents by sound more than sight. Its owl like facial ruff of feathers enhances that hearing.

Black Bear (*Ursus americanus)*
The pointed snout, small beady eyes, erect ears, and powerful limbs all help the black bear eat enough food to weigh anywhere from 200 lbs to 300 lbs. They eat anything from berries to fish, with huckleberries being a favorite treat. They will use hollow trees and old snags for dens to go into hibernation, although they are not true hibernators in that they do not lower their body temperature significantly enough.

Elk (*Cervus canadensis)*
This tall and long animal, up to 9 feet long and 4 or 5 feet tall, lack upper incisors for eating meat, but have plenty of molars for grinding the foliage that they eat in to cud. They migrate depending on the season, but their light brown fur can keep them warm in winter, or can be found on the trail as they try to cool down in summer. The males' antlers are shed every season and are used for fighting over a mate or for protection from such predators as the mountain lion.

Red Fox (*Vulpes vulpes*)
As the name implies the red fox is usually red, but can go through color phases from brownish to red. There is a special sub species here in the cascades and Mt. Rainier. The elusive red fox preys primarily on small rodents and rabbits at night to make it mostly nocturnal, although it will eat insects, earthworms, fruit and seeds, and some bird eggs. They make great big leaps to pounce on their prey, while their big bushy tails serve as balance. Either way their fur coats are an added bonus on the higher elevation slopes.

Marten (*Martes americana)*
A member of the weasel family, it has an anal scent gland (not as well developed as in the skunk), the longish body and short legs is covered with a rich dark brown fur. A very curious animal it feeds on squirrels, voles, and occasionally berries. It has evolved a striking resemblance to their favorite prey: squirrels. They spend most of their time in trees using their sharp claws, until winter brings the snows and they hunt and scavenge on the ground more.

Heather Vole (*Phenacomys intermediu*)
This "mouse" finds its home in open meadows, especially ones covered in wildflowers. It mainly eats seeds and underground fruiting fungi. In the summer it will find shelter in any type of hole underground. Winter home entails a nest made under the snow with lichen and branches.

Alaskan Yellow Cedar (*Chamaecyparis nootkatensis)*
The oldest trees in the park, this shade tolerant tree is able to outlive other trees and can become a climax community species. Its branches are flattened and appear to hang limp vertically against the tree. It lives in moist soils fed by snowmelt, and can be found in avalanche chutes.

Sub-Alpine Forest

Mountain Hemlock (*Tsuga mertensiana*)
As a mountain hemlock starts off as purplish cones on the crown of the parent tree. The cones are larger then its cousin, western hemlock. Since mountain hemlock thrives in snowy wet environments, its branches are very flexible so withstand the weight of snow on its branches. This allows it to live up to 500 to 700 years of age.

Subalpine Fir (*Abies lasiocarpa*)
This tree has to live in extreme conditions, from freezing snow and ice to the strong rays of the sun. It has short stubby branches so that snow will not stay on them and bend or break the branches. It reproduces by cones, or when the conditions are not right it will start a new tree when one of the branches grows next to the ground and it sets roots. They grow in krummholz, German word for crooked, shape from the extreme wind temperatures.